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EXAMINER

AMINI, JAVID A

ART UNIT PAPER NUMBER

2672

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/877,852

Applicant(s)

KILGARD ET AL.

Examiner

Javid A Amini

Art Unit

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 1-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. See publication of US 6,198,488 B1.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 7-10, 13-16 and 19-24 rejected under 35 U.S.C. 102(b) as being anticipated by Baldwin.

2. Claim 1.

“(a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) Processing the vertex data by calling the parameters utilizing a vertex program capable of referencing the parameters using the identifiers”. The step is inherent because in order to process vertex data, the procedures should have identifiers that associated with vertex data, otherwise how would be acknowledged a plurality of parameters associated with vertex data? (An identifier is any text string used as a label, such as the name of a procedure or a variable in a program, similar to an index entry in a book that identifies a significant topic or element in a stored document or group of documents. In programming, a piece of stored

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information used to describe something else.) Baldwin discloses in (col. 9, lines 23-67) the application generates the triangle vertex information (considered as a plurality identifiers) and makes the necessary OpenGL calls to draw it. The OpenGL server/library gets the vertex information, transforms, and clips and lights it. It calculates the initial values and derivatives for the values to interpolate ( $X_{\text{left}}$ ,  $X_{\text{right}}$ , red, green, blue and depth) for unit change in dx and  $dx dy_{\text{left}}$ . All these values are in fixed-point integer and have unique message tags. Some of the values (the depth derivatives) have more than 32 bits to cope with the dynamic range and resolution so are sent in two halves. Finally, once the derivatives, start and end values have been sent to GLINT the 'render triangle' message is sent. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier).

3. Claim 2.

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“The method as recited in claim 1, wherein the parameters are selected from the group consisting of vertices, normal, colors, fog coordinates, vertex weights, and texture coordinates”. Baldwin discloses in (col. 34, lines 27-37) the parameter is consisting of (color/depth/texture/fog).

4. Claim 3.

“The method as recited in claim 1, wherein the parameters include per-vertex parameters”. Baldwin discloses in (col. 9, lines 36-40) the server gets the vertex information and it calculates the initial values and derivatives for the values to interpolate ( $X_{\text{left}}$ ,  $X_{\text{right}}$ , red, green, blue and depth) for unit change in dx and  $dx dy_{\text{left}}$ . All these values are in fixed-point integer and have unique message tags. Therefore the parameters include vertex parameters.

5. Claim 4.

“The method as recited in claim 1, wherein the parameters are also capable of being called by a conventional semantic name associated with the parameters”. Baldwin discloses in (col. 60, lines 1-15) the graphics programming is OpenGL compatible semantics.

6. Claim 7.

“A computer program product for aliasing vertex attributes during vertex (a) computer code for mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) computer code for processing the vertex data by calling the parameters utilizing a vertex program capable of referencing the parameters using the identifiers”. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the

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sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier).

7. Claim 8.

“The computer program product as recited in claim 7, wherein the parameters are selected from the group consisting of vertices, normal, colors, fog coordinates, vertex weights, and texture coordinates”. Baldwin discloses in (col. 34, lines 27-37) the parameter is consisting of (color/depth/texture/fog).

8. Claim 9.

“The computer program product as recited in claim 7, wherein the parameters include per-vertex parameters”. Baldwin discloses in (col. 9, lines 36-40) the server gets the vertex information and it calculates the initial values and derivatives for the values to interpolate ( $X_{\text{left}}$ ,  $X_{\text{right}}$ , red, green, blue and depth) for unit change in dx and  $dx dy_{\text{left}}$ . All these values are in fixed-point integer and have unique message tags. Therefore the parameters include vertex parameters.

9. Claim 10.

“The computer program product as recited in claim 7, wherein the parameters are also capable of being called by a conventional semantic name associated with the parameters”. Baldwin discloses in (col. 60, lines 1-15) the graphics programming is OpenGL compatible semantics.

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## 10. Claim 13.

“A system for aliasing vertex attributes during vertex processing, comprising: (a) logic for mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) logic for processing the vertex data by calling the parameters utilizing a vertex program capable of referencing the parameters using the identifiers”. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier).

## 11. Claim 14.

“The system as recited in claim 13, wherein the parameters are selected from the group consisting of vertices, normals, colors, fog coordinates, vertex weights, and texture coordinates”. Baldwin discloses in (col. 34, lines 27-37) the parameter is consisting of (color/depth/texture/fog).

## 12. Claim 15.

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“The system as recited in claim 13, wherein the parameters include per-vertex parameters”.

Baldwin discloses in (col. 9, lines 36-40) the server gets the vertex information and it calculates the initial values and derivatives for the values to interpolate ( $X_{\text{left}}$ ,  $X_{\text{right}}$ , red, green, blue and depth) for unit change in  $dx$  and  $dx dy_{\text{left}}$ . All these values are in fixed-point integer and have unique message tags. Therefore the parameters include vertex parameters.

13. Claim 16.

“The system as recited in claim 13, wherein the parameters are also capable of being called by a conventional semantic name associated with the parameters”. Baldwin discloses in (col. 60, lines 1-15) the graphics programming is OpenGL compatible semantics.

14. Claim 19.

“A method for aliasing vertex attributes during vertex processing, comprising: (a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) processing the vertex data by referencing the parameters using the identifiers; (c) wherein the parameters are selected from the group consisting of vertices, normals, colors, fog coordinates, vertex weights, and texture coordinates”. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but



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some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters).

Each block to identify the message type so it knows how to act on it uses the tag field (identifier). Baldwin discloses in (col. 34, lines 27-37) the parameter is consisting of (color/depth/texture/fog).

15. Claim 20.

“A method for aliasing vertex attributes during vertex processing, comprising: (a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) processing the vertex data by referencing the parameters using the identifiers; (c) wherein a need for defining additional semantic names for the parameters is avoided as a result of the aliasing”.

Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier).

16. Claim 21.

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“A data structure stored in memory for aliasing vertex attributes during vertex processing, comprising: (a) a table that maps each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; (b) wherein the vertex data is processed by calling the parameters utilizing a vertex program capable of referencing the parameters using the table”. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier) and also see register table in (col. 16, line 11-67).

17. Claim 22.

“A binding method for use during graphics processing comprising: (a) binding each of a plurality of identifiers to one of a plurality of parameters associated with graphics data; (b) calling the parameters associated with the graphics data using the identifiers; and (c) processing the parameters associated with the graphics data according to an application supplied sequence of vertex processing instructions”. Baldwin discloses in (col. 7, lines 25-49) in this system all the

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processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier) and also see register table in (col. 16, line 11-67).

18. Claim 23.

“A binding system for use during graphics processing, comprising: (a) logic for binding each of a plurality of identifiers to one of a plurality of parameters associated with graphics data; (b) logic for calling the parameters associated with the graphics data using the identifiers; and (c) logic for processing the parameters associated with the graphics data according to an application-supplied sequence of vertex processing instructions”. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control,

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synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier) and also see register table in (col. 16, line 11-67).

19. Claim 24.

“A binding system for use during graphics processing, comprising: (a) logic for binding each of a plurality of identifiers to one of a plurality of parameters associated with graphics data; (b) logic for calling the parameters associated with the graphics data using the identifiers; and means for processing the parameters associated with the graphics data”. Baldwin discloses in (col. 7, lines 25-49) in this system all the processing blocks (plurality of parameters) are connected (mapping) in a long pipeline with communication with the adjacent blocks being done through message passing. The message rate is variable and depends on the rendering mode. If the receiving block cannot accept a message, because its input buffer is full, then the sending block stalls until space is available. The message structure is fundamental to the whole system as the messages are used to control, synchronize and inform each block about the processing it is to undertake. Each message has two fields a 32-bit data field and a 9-bit tag field. (This is the minimum width guaranteed, but some local block-to-block connections may be wider to accommodate more data.) The data field will hold color information; coordinate information, local state information, etc. (parameters). Each block to identify the message type so it knows how to act on it uses the tag field (identifier) and also see register table in (col. 16, line 11-67).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 6, 12 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Baldwin, and further in view of Ashburn.

21. Claims 6, 12, 18.

“wherein the mapping is carried out by an application program interface”. Baldwin does not explicitly specify the mapping carried out by an application program. However, Ashburn teaches in (col. 7, lines 9-12) the resultant texture mapping data from the texture mapping board over bus by an application program.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ashburn into Baldwin in order for reducing the amount of data to copy and fast access to ALU.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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22. Claims 4, 5, 10, 11, 16-17 and 20 recite the limitation “conventional semantic name” in claims 4, 10, 16; and the limitation “defining additional semantic names” in claims 5, 11, 17 and 20. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-24 rejected under 35 U.S.C. 101 because the claims merely manipulate “processing the vertex data”, and the claims invention is directed to non-statutory subject matter. The claims 1-24 merely manipulate an abstract idea without producing a useful, concrete and tangible result.

### *Claim Objections*

23. Claims 19 and 20 objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1-2 and 1-5 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). (See notes below)

24. Note: the subject matter, limitations and the scope of coverage of claims 1 and 2 cover the subject matter, limitations and the scope of coverage of claim 19 see below.

{Claim 19.

A method for aliasing vertex attributes during vertex processing, comprising: (a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) processing the vertex data by referencing the parameters using the identifiers; (c) wherein the parameters are selected from the group consisting of vertices, normals, colors, fog coordinates, vertex weights, and texture coordinates.

Claim 1.

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A method for aliasing vertex attributes during vertex processing, comprising: (a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) Processing the vertex data by calling the parameters utilizing a vertex program capable of referencing the parameters using the identifiers.

Claim 2.

wherein the parameters are selected from the group consisting of vertices, normal, colors, fog coordinates, vertex weights, and texture coordinates.}

25. Note: the subject matter, limitations and the scope of coverage of claims 1 and 5 cover the subject matter, limitations and the scope of coverage of claim 20 see below.

{Claim 20.

A method for aliasing vertex attributes during vertex processing, comprising: (a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) processing the vertex data by referencing the parameters using the identifiers; (c) wherein a need for defining additional semantic names for the parameters is avoided as a result of the aliasing.

Claim 1.

A method for aliasing vertex attributes during vertex processing, comprising: (a) mapping each of a plurality of identifiers to one of a plurality of parameters associated with vertex data; and (b) Processing the vertex data by calling the parameters utilizing a vertex program capable of referencing the parameters using the identifiers.

Claim 5.

wherein a need for defining additional semantic names for the parameters is avoided as a result of the aliasing.}

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A Amini whose telephone number is 703-605-4248. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-8705 for regular communications and 703-746-8705 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

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Javid A Amini  
Examiner  
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Javid Amini  
February 24, 2003

  
JEFFERY BRIER  
PRIMARY EXAMINER